Land North of Ashton Road, Carrington Daines Battery Energy Storage System (BESS)

Biodiversity Net Gain Assessment

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1 Introduction

1.1 Background

1.1.1.1 Arcadis Consulting (UK) Limited was commissioned by SSE Daines BESS Limited to provide ecological input in the form of a Biodiversity Net Gain (BNG) assessment for the development of a Battery Energy Storage System (BESS) on land north of Ashton Road, Carrington in Trafford (hereafter referred to as the 'Site').

1.1.1.2 This report outlines the baseline value of the Site and the measures required to achieve a minimum of 10% net gain in biodiversity post-development. This report should be read in conjunction with the Preliminary Ecological Appraisal, also produced by Arcadis (document ref: 30217049-ARC-ECO-REP-00001).

1.1.1.3 This report has been prepared in support of a Full Planning Application (Reference 115160/FUL/24).

1.2 Proposed Scheme

1.2.1.1 The development will comprise of containerised battery units with transformer units and inverter cabinets, switchgear buildings, internal access tracks, electrical substation compound including transformers, switchgear, and associated equipment, CCTV and emergency / security lighting, perimeter fencing, underground surface water drainage infrastructure, vehicular parking, Site welfare facilities, underground cable connection, and other associated infrastructure.

1.2.1.2 The proposed ancillary 400kV underground cable route extends to a Point of Connection (POC), which is located to the east at the Daines Substation (OS Grid Reference) SJ 75063 92152. The habitats above the cable will be restored, and in some areas new habitats created, once construction works are completed, however some trees may need to be permanently removed to allow cable trenching. The access tracks will be sealed hardstanding and include passing places. All site infrastructure, ancillary infrastructure and BNG requirements will be delivered onsite, within the planning red line boundary (shown in image 1).

1.2.1.3 Landscaping proposals within the red line boundary are focussed within the main field containing the BESS and extend along part of the cable route for BNG purposes.

1.3 Development Parcels Location and Setting

1.3.1.1 The Site is located in Carrington, Trafford, made up of the main development (the Battery Storage Energy System) and a proposed underground cable extending approximately 1 km north-east to connect with the existing Daines Substation (Image 1). The cable route includes two options, as shown by the two sections leading into the existing Substation at the far east of Site (Image 1). The Site also incorporates access tracks to the east and west of the main Site. The entire red line boundary extends to 19.93 hectares and has a central OS Grid Reference of SJ 742 916 and nearest post code M31 4AP.

1.3.1.2 The Site is situated in predominantly active arable land with crops for the most part, and the far east of the cable route crosses grazed fields associated with a horse-riding school, and several sections of tree lines. Lines of trees are located within the Site boundary, adjacent to the south and east of the main Site.

1.3.1.3 The Site connects to the wider landscape via tree lines, defunct hedgerows and ditches to a linear band of woodland to the west and south (a disused railway cutting) and a woodland including a lake to the north (Wetland at Carrington Moss Site of Biological Importance (SBI)). There is also good connectivity between the far east of the Site with parcels of woodland beyond. The habitats immediately surrounding the Site comprise similar arable fields to the east, south and west, and to the north-west is part of the former Shell petrochemicals facility and includes vacant previously developed land. The Site boundary is presented in Image 1.

Image 1 Red Line Boundary

1.4 Biodiversity Net Gain Approach

1.4.1.1 As outlined in Section 1.3, the proposed development area will be predominantly built structures and sealed surfaces within the main Site. Access roads will be widened marginally in places and converted to sealed surfaces for the most part. The cable route will comprise a mixture of retained habitats, such as cropland and modified grassland (where the works will be temporary and returned to their original state within two years), and created habitats. Landscaped areas around the boundary of the main BESS Site will include habitat creation.

1.4.1.2 To achieve biodiversity net gain of at least 10%, all habitat creation will be undertaken within the red line boundary and therefore no off-site units will be required.

1.4.1.3 Land partially within the cable corridor and to the south has been identified as future BNG mitigation for a neighbouring development (Land At Carrington Junction, Planning Ref: 109755/OUT/22). Our approach to habitat creation along the cable route and beyond, aims to link up with this area of mitigation to create and enhance green corridors across the wider landscape.

1.4.1.4 While the red line boundary allows for two cable route options into the existing Daines Substation (and the entire red line boundary has been used to inform the baseline and post-construction habitat

calculations), the BNG impact assessment has only been based on impacts to the eastern route. The eastern route is of higher existing biodiversity value in comparison to the western option and therefore the assessment is considered a reasonable worst-case scenario. This precautionary assessment will ensure at least 10% BNG is deliverable for both habitats and hedgerows, regardless of which option is taken.

1.4.1.5 It is our understanding that a separate planning application to extend the National Grid Daines Substation is to be submitted in due course by National Grid. This substation extension to the east is required to facilitate the connection of the BESS and a formal connection agreement with National Grid to connect into the substation has been made. However, the programme interaction of these two applications is currently unknown, with uncertainty over who will complete works in the field east of the substation first.

1.4.1.6 Our BNG assessment has therefore been based on the worst-case scenario that SSE Daines BESS Limited undertake the cable connection works first and the land above the cable connection will be returned to its current habitat. However, if National Grid substation works commence first, the future baseline of the land east of the substation would be sealed surface, resulting in a reduced number of baseline biodiversity units. This would therefore return a higher net gain than the projected 10.56%. In addition, the substation extension application will be required to provide its own biodiversity net gain of at least 10%. Therefore, the current calculations and assumptions made within this report provide a reasonable 'worst-case' scenario and ensure that at least 10% BNG will be delivered regardless of construction programme.

1.5 Biodiversity Net Gain in Policy and Legislation

1.5.1 Legislation and National policy

1.5.1.1 Biodiversity Net Gain (BNG) of at least 10% is required for every new development undergoing planning permission, under a statutory framework introduced by Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021).

1.5.1.2 The biodiversity net gain regulations most directly relevant to planning are:

- The Environment Act 2021 (Commencement No. 8 and Transitional Provisions) Regulations 2024 which commence biodiversity net gain for most types of new planning applications and provides transitional arrangements for section 73 permissions.

- The Biodiversity Gain Requirements (Exemptions) Regulations 2024 which prescribe exemptions for categories of development to which biodiversity net gain does not apply.

- The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024 which amend the Town and Country Planning (Development Management Procedure) (England) Order 2015 and the Town and Country Planning (Section 62A Applications) (Procedure and Consequential Amendments) Order 2013 to include provisions in respect of applications for planning permission and the submission and determination of Biodiversity Gain Plans, as well as modifications of Schedule 7A of the Town and Country Planning Act 1990 for phased development.

- The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 which set out the modifications for irreplaceable habitat.

1.5.1.3 In line with the above legislation and the National Planning Policy Framework (MHCLG, 2023), new developments should therefore identify and pursue opportunities for securing measurable net gains for biodiversity and for the wider environment.

1.5.2 Local policy

1.5.2.1 The local policies relevant to BNG on the Site are listed below.

- Places For Everyone: Joint Development Plan Document (GMCA, 2024).

  Places For Everyone: Joint Development Plan Document, published by Greater Manchester Combined Authority, was adopted in March 2024. Within this document, Policy JP-G8: A Net Enhancement of Biodiversity and Geodiversity is relevant. Relevant sections of the policy are as follows:

  > *Through local planning and associated activities a net enhancement of biodiversity resources will be sought, including, where relevant, by:*
  >
  > *1. Increasing the quality, quantity, extent and diversity of habitats, particularly priority habitats identified in national or local biodiversity action plans and those that support priority species;*
  >
  > *2. Improving connections between habitats, to protect and enhance the provision of corridors, ecological networks (including Nature Recovery Networks) and steppingstones that enable the movement of species, especially as the climate changes;*
  >
  > *3. Enhancing the management of existing habitats, including through habitat restoration, avoiding habitat fragmentation and combating invasive species*
  >
  > *4. Protecting sites designated for their nature conservation and/or geological importance, with the highest level of protection given to international and then national designations*
  >
  > *…*
  >
  > *Development will be expected to:*
  >
  > - *Follow the mitigation hierarchy (avoid/mitigate/compensate harm to biodiversity)*
  > - *Avoid fragmenting or severing connectivity between habitats*
  > - *Achieve a measurable net gain in biodiversity of no less than 10%*
  > - *Make appropriate provision for long-term management of habitats and geological features connected to the development*

  The land containing the Site is formally identified in the Places For Everyone document. This land is described in Policy JP-Strat11: New Carrington and is earmarked for a significant mixed-use development.

  The Policy states that developments across the wider New Carrington area should make provision for biodiversity, and restore and create wildlife corridors, steppingstone habitats and areas of wetland. They should also "*deliver a clear and measurable net gain in biodiversity, including provision for long-term management of habitats and geological features which may include SUDs systems of high biodiversity value created as part of the overall flood risk and drainage strategy*".

- Report of the Greater Manchester Local Nature Recovery Strategy Pilot (GMCA, 2021)

  The Site specifically is not located within any land identified in this report (which comprises local and nationally designated sites for biodiversity).

2 Methodology

2.1.1.1 The purpose of this document is to estimate the potential net change in biodiversity value of the proposed development. This approach uses information on the habitats and features of the Site before and after the proposed habitat loss and mitigation through habitat creation and long-term management to calculate a biodiversity value. This information is then used to calculate a change in the biodiversity value of the Site.

2.1.1.2 These calculations were undertaken using the Statutory Biodiversity Metric (SBM) issued by Defra and Natural England (Defra, 2024a). SBM is a spreadsheet-based tool into which data can be entered to carry out BNG calculations.

2.1.1.3 Data is entered into the SBM using the UK habitat (UKHab) classification typologies. When considering baseline conditions, the SBM takes account of several factors, detailed below in Table 1. The numbers in brackets show the multipliers used by the metric for each category.

Table 1: Statutory Biodiversity Metric Criteria

Evaluation	Values assigned	Criteria
Habitat group and type	UKHab classification typologies	Based upon “species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats”
Size of habitat parcel	Area measured in hectares and linear features measured in kilometres	N/A
The distinctiveness of the habitat type	Value predetermined for each habitat type on a scale of Very Low (0), Low (2), Medium (4), High (6) and Very High (8)	Distinctiveness considers the rarity of the habitat, the amount of the percentage of habitat protected in SSSIs, the UK Priority Habitat Status and the European Red List Categories for the habitat
The condition of each habitat parcel	Value assigned based on a scale of Poor (1), Fairly Poor (1.5), Moderate (2), Fairly Good (2.5) and Good (3). For some habitat types this is pre-determined	Condition sheets were used where possible to assess the condition (DEFRA, 2024b)
Whether the parcels are in locations identified as local nature priorities	Value assigned based on a scale of Low (1), Medium (1.1) and High (1.15) strategic importance	N/A
Watercourse encroachment (watercourses only)	Value assigned based on a scale of Major (0.5), Minor (0.8) and No Encroachment (1.0)	Based on the definitions as outlined within The Statutory Biodiversity Metric User Guide (DEFRA, 2024c)
Riparian encroachment – both banks (watercourses only)	Value assigned based on a scale of Major, Moderate, Minor and No Encroachment on each bank.	Based on the definitions as outlined within The Statutory Biodiversity Metric User Guide (DEFRA, 2024c).

2.2 Data Preparation

2.2.1 Baseline Data

2.2.1.1 As stated above, the SBM is designed to work with the UKHab Classification system and this methodology was used during the Site visits on 21 June 2024 and 18 October 2024.

2.3 Habitat Calculations

2.3.1 Unit calculation

2.3.1.1 To calculate the biodiversity units of the Site as a whole, the SBM calculates the units for each of the habitat types and then multiplies them by the size of this habitat. The unit number is based upon the habitat's distinctiveness, condition and strategic significance (as well as watercourse and riparian encroachment for watercourses only).

2.3.2 Habitat size

2.3.2.1 The sizes of the different proposed habitats were calculated using a Geographical Information System using the baseline habitat data collected during the Site survey.

2.3.3 Habitat distinctiveness

2.3.3.1 The SBM assigns a pre-defined distinctiveness band to each of the habitats and linear features.

2.3.3.2 **Area based habitats**

2.3.3.3 This assessment is based upon "species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats". Table 2 provides detail of the bandings to which each area-based habitat is assigned.

Table 2: Area based habitat distinctiveness valuation bandings

Distinctiveness band	Multiplier	Typical habitats
Very High	8	Priority habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act (HMSO, 2006) that are highly threatened, internationally scarce and require conservation action e.g. blanket bog Small amount of remaining habitat with a high proportion unprotected by designation. Endangered or Critical European red list habitats.
High	6	Priority habitats as defined in Section 41 of the NERC Act (HMSO, 2006) requiring conservation action e.g., lowland fens Remaining Priority Habitats not in very high distinctiveness band & other red list habitats.
Medium	4	Semi-natural habitats not classed as a Priority Habitat but with significant wildlife benefit, e.g., mixed scrub. One Priority Habitat (arable field margins).
Low	2	Habitat of low biodiversity value e.g., temporary grass and clover ley.

Distinctiveness band	Multiplier	Typical habitats
		Agricultural and Urban land of lower biodiversity value.
Very low	0	Little or no biodiversity value e.g., hard standing or sealed surface Urban – artificial structures which are un-vegetated, sealed surfaces or built linear features of very low biodiversity value.

2.3.4 Habitat condition assessment

2.3.4.1 The condition of the habitat is defined as: “the biological ‘working-order’ of a habitat type judged against the perceived ecological optimum state for that particular habitat.” This provides a measure of variation in the quality of areas of the same habitat type.

2.3.4.2 **Area based habitats**

2.3.4.3 A habitat condition assessment sheet is provided for each habitat type within the SBM methodology, which should be used to assign each habitat parcel to each of the categories detailed in Table 3. Each condition sheet is composed of a list of pass/fail criteria (except woodland habitats which use a scoring system). The ratio of ‘passes’ to ‘fails’ is used to determine the habitat condition.

Table 3 : Condition bandings for the habitats on the Site

Category	Multiplier
Good	3
Fairly good	2.5
Moderate	2
Fairly poor	1.5
Poor	1
N/A – Agriculture	1
N/A – other	0

2.3.5 Strategic significance assessment

2.3.5.1 Strategic significance assesses the value of habitats from the point of view of environmental objectives and preferred locations for biodiversity. Local and national policy was reviewed to quantify the strategic significance of each habitat area. Table 4 was used to assist with this assessment.

Table 4: Strategic significance categories and multipliers

Category	Description	Multiplier
High	Area/action formally identified within a local plan, strategy or policy.	1.15
Medium	Location ecologically desirable but area/action not identified in local plan, strategy or policy.	1.1

Category	Description	Multiplier
Low	Area/action not identified in any local plan, strategy or policy. No local strategy in place.	1

2.3.6 Watercourse encroachment (watercourses only)

2.3.6.1 Watercourse encroachment assesses features or actions that adversely affect the natural function of the watercourse, or results in localised changes in habitat, species and migratory pathways. Table 5 was used to assist with this assessment.

Table 5: Watercourse encroachment categories and multipliers for ditches

Category	Description for ditches	Multiplier
No Encroachment	Less than 5% of the bank length is an engineered bank revetment and there is no encroachment into the channel	1
Minor	5% to 20% of the bank length is an engineered bank revetment; or there is encroachment across up to 10% of the channel width at any one point. For example, small headwalls, jetties and pontoons.	0.8
Major	Greater than 20% of the bank length is an engineered bank revetment; or there is encroachment across greater than 10% of the channel width at any one point. For example, weirs, large headwalls and bank revetment.	0.5

2.3.7 Riparian encroachment (watercourses only)

2.3.7.1 Riparian encroachment assesses any features or interventions within the riparian zone that reduce the quantity, quality or ecological function of the riparian habitat. This could include buildings or hardstanding, management practices (including agriculture), or structures that prevent wildlife from accessing the riverbank. The riparian zone for ditches is the area within 5m of the top of each bank (10m for rivers and streams). Encroachment is assessed for the left and right banks separately. Table 6 and Table 7 were used to assist with this assessment.

Table 6: Riparian encroachment categories for each bank top (ditches)

Category	Description
No encroachment	No encroachment within 5 metres of bank top
Minor	Any encroachment 4 to 5 metres from the bank top (covering up to 100% of area); or where the footprint of encroachment occupies 0-10% of the riparian zone area 2 to 5 metres from bank top.
Moderate	Where the footprint of encroachment occupies between 10% to 25% of the riparian zone area 2 to 5 metres from the bank top.
Major	Any encroachment 0 to 2 metres from the bank top; or where encroachment occupies greater than 25% of the total riparian zone area.

Table 7: Riparian encroachment multipliers for ditches

Category (both banks)	Multiplier
Major/Major	0.75
Major/Moderate	0.80
Major/Minor	0.84
Major/No Encroachment	0.87
Moderate/Moderate	0.85
Moderate/Minor	0.90
Moderate/No Encroachment	0.92
Minor/Minor	0.95
Minor/No Encroachment	0.98
No Encroachment/No Encroachment	1.00

2.3.8 Baseline calculations

2.3.8.1 The number of biodiversity units provided by each habitat currently within the Site is calculated by multiplying the values for Distinctiveness, Condition, Strategic location and the size of each habitat in hectares (ha). The Site survey, satellite imagery (Google Earth, 2023) and MAGIC (2023) mapping were used to inform these baseline calculations.

2.3.9 Post-intervention calculations

2.3.9.1 The Site is then reassessed based on the habitat conditions that will be targeted under the habitat creation proposal. The number of biodiversity units provided by each habitat within the Site is calculated in the same way as the baseline habitats, but with the additional multipliers detailed in Table 8. Further detail regarding these multipliers is presented in 2.3.10.

Table 8: Risk components included in post-intervention calculations

Risk factor	Description
Difficulty of creating or restoring a habitat	A standard score based on how difficult the habitat type is to create or enhance.
Temporal risk	A standard score based on how long the habitat type takes to establish at the target condition.

2.3.10 Post-intervention delivery risks

2.3.10.1 **Difficulty of creating or restoring a habitat**

2.3.10.2 This ‘risk’ relates to the difficulty of the habitat restoration or recreation. There are four bands, from Low difficulty to Very high difficulty, with the value multiplier shown below in Table 9.

Table 9: Difficulty categories and multiplier

Category	Multiplier
Very high	0.1
High	0.33
Medium	0.67
Low	1

2.3.10.3 Different habitat change scenarios are attributed different levels of risk (risk around the confidence in the successful establishment of habitats) and different multipliers are applied to reflect this. Two distinct habitat change scenarios are recognised in the SBM:

- **Habitat creation:** Where one habitat type is replaced by another, or the habitat is removed (e.g., by development works) and the same habitat is recreated.

- **Habitat enhancement:** An enhanced habitat is where its distinctiveness and / or condition are improved within the same habitat group. An example of enhancement would be the enhancement of a derelict chalk grassland dominated by scrub and non-calcareous grasses to a continuous area of chalk grassland with managed woody species and an abundance of calcareous grasses.

2.3.10.4 Enhancement carries less risk and can therefore provide a greater unit uplift.

2.3.10.5 **Temporal risk**

2.3.10.6 Temporal risk is a factor of the time it takes for the habitat to reach target condition. This can be reliant on soil nutrient status, soil type and pH, Site preparation, climate and the neighbouring habitats and species matrix available to colonise the new or restored habitat. The timeframe is also resource dependent. With sufficient time and resources most habitats can be recreated more rapidly but a more gradual process may be more beneficial to wildlife in the longer term.

2.3.10.7 For the purposes of the SBM average time estimates are used, accepting that there will be variation from this proxy estimate. For example, some sites will take longer, where conditions are more nutrient enriched or higher altitude or north facing. Average estimates of the time to target condition were largely expert driven and build upon the considerations that shaped judgements of the difficulty to create or restore a habitat. They were additionally informed by field experience, industry case studies and a body of practical experience. The time to target condition varies between 0 and greater than 30 years, with 0 years having a multiplier of 1. The multiplier decreases by 3.5% per year.

2.3.10.8 **Spatial risk**

2.3.10.9 A separate risk multiplier is applied to post-intervention sites outside of the Site. This incentivises the use of sites near the intervention Site, for ecological and social reasons. Higher multipliers are assigned to more distant sites, as shown in Table 10, which results in a decrease in the value of an off-site location with increasing distance.

Table 10: Off-site risk categories (LPA – local planning authority area, NCA – National Character Area)

Category	Multiplier
Compensation inside LPA or NCA of impact Site.	1
Compensation outside LPA or NCA of impact Site but in neighbouring LPA or NCA.	0.75
Compensation outside LPA or NCA of impact Site and beyond neighbouring LPA or NCA.	0.5

2.3.11 Advanced and delayed habitat creation

2.3.11.1 The SBM includes a provision to account for advanced or delayed habitat interventions. Advanced habitat interventions are encouraged within the metric (along with being good practice), by reducing the multipliers associated with time to target condition. Similarly delayed habitat interventions are discouraged, with delays resulting in increased time to target condition. For example, habitat interventions carried out two years ahead of time or delayed for two years will result in the time to target condition being reduced or increased by two years, respectively.

2.3.11.2 It has been assumed that there will be no delay to landscape proposals around the BESS but that a 2-year delay will be applied to proposed grassland habitat along the cable route.

2.3.12 'Pseudo' Double counting areas

2.3.12.1 The total area input into the tool can be greater than the total area of the Site. This is due to the three-dimensional nature of certain habitats. For example, the area covered by a tree is approximately the area covered by its canopy, but if an area of grassland is underneath, both would be included in the metric. As such the area of the tree canopy is 'counted' twice and can result in the area in the metric being larger than the area of the Site.

2.3.13 Calculation of gains or losses

2.3.13.1 The net change in biodiversity or hedgerow units on and off-site is calculated within the tool by subtracting the baseline units from the post-intervention units. The overall net change is the sum of the change in units on-site and off-site. The percentage net gain is then calculated by dividing this overall net change by the number of baseline units on the Site, as shown in the equation below:

$$= \frac{h \qquad\qquad + h}{} \times 100$$

2.3.13.2 A positive value indicates a net gain has been made and a negative value indicates a net loss has been made.

2.3.14 Changes in habitat group calculations

2.3.14.1 The UKHab classification system is hierarchical in structure, so specific habitat types can be grouped into habitat groups. The changes in area and biodiversity units associated with each of these habitat groups was calculated using the baseline and post-intervention data.

2.3.15 Areas excluded from the assessment

2.3.15.1 The metric is not designed to assess impacts to habitats within statutory designated sites or “irreplaceable” habitats. There are no irreplaceable habitats, such as ancient woodland, or statutory designated sites present within the Site and therefore all habitats were assessed.

2.3.15.2 It should be noted that deep peat is present within the site, however this is not considered to meet the criteria for an Annex 1 habitat (7120 Degraded raised bogs still capable of natural regeneration) due to being intensively-managed agricultural land with no species typical of active raised bogs being present, and no likelihood the bog would naturally regenerate. Therefore, it is not considered to be an irreplaceable habitat.

2.4 Assumptions and Limitations

2.4.1.1 The majority of field drains within the red line boundary were evaluated as not holding water for more than 4 months per year, thus failing to meet the criteria for classification as drains in the statutory metric. The exception to this was the ditches on either side of Birch Road, near to where the cable route crosses this road. As these contained water and were flowing during the second site visit they will be classed as ditches within this assessment.

2.4.1.2 It has been assumed that there will be no delay to habitat creation around the main BESS Site, but that a two-year delay will be applied to grassland habitats created along the cable route to allow time for works to be completed prior to habitat creation.

3 Results

3.1 Baseline biodiversity units

3.1.1.1 The habitats present on Site were assessed to establish a baseline. The typology and condition of each of the habitat present on Site is detailed within Section 3.1.2 and presented in Figure 1: Baseline Habitat Plan (Appendix A).

3.1.1.2 The results of each habitat assessment and the total baseline units are presented in Table 11, 12 and 13 for area habitats, hedgerows and watercourse respectively.

3.1.1.3 The baseline currently delivers 42.65 Biodiversity Units (bu) for area habitats on-site, 5.64bu for hedgerows and 0.17bu for watercourses.

3.1.2 Habitat typology and condition

3.1.2.1 The site is located on predominantly arable fields, with sections of improved grassland and tree lines.

3.1.2.2 **Grassland: Modified grassland**

3.1.2.3 Modified grassland was present in the northeast of the site around the Daines substation, in the middle of the site along the field boundaries of the two fields, and in verges along the access roads. Species present included Yorkshire fog *Holcus lanatus*, broad-leaved dock *Rumex obtusifolius*, white clover *Trifolium repens*, creeping buttercup *Ranunculus repens*, perennial ryegrass *Lolium perenne*, occasional yarrow *Achillea millefolium*, *daisy Bellis perennis*, and thyme-leaved speedwell *Veronica serpyllifolia*. A total area of 3.94 ha of modified grassland was present on-site.

3.1.2.4 All of the modified grassland present on-site was assessed as being in poor condition.

3.1.2.5 **Grassland: Other neutral grassland**

3.1.2.6 There was one patch of other neutral grassland present on the site with a total area of 0.02 ha. This was located on the western boundary of the site. Species include red clover *Trifolium pratense*, ribwort plantain *Plantago lanceolata*, false oat grass *Arrhenatherum elatius*, cock's foot *Dactylus glomerata*, bramble *Rubus fruticosus*, ragwort *Senecio jacobaea*, and red fescue *Festuca rubra*.

3.1.2.7 This other neutral grassland habitat was assessed as being of poor condition.

3.1.2.8 **Cropland: Cereal crops**

3.1.2.9 The majority of the Site comprised of arable fields with planted cereal crops. This habitat was present across the much of the main BESS Site and the proposed cable route. Cropland made up a total area of 12.24 ha.

3.1.2.10 This habitat has a predefined condition on "NA – Other"

3.1.2.11 **Urban: Developed land; sealed surface**

3.1.2.12 There were patches of developed land; sealed surface present on the Site, with a total area of 0.96 ha. These were located in the existing Daines substation and along the eastern access road.

3.1.2.13 This habitat has a predefined condition of “NA – Other”

3.1.2.14 **Urban: Artificial unvegetated, unsealed surface**

3.1.2.15 Artificial unvegetated, unsealed surface habitat was present along Ashton Road at the south of the Site and had a total area of 0.88 ha.

3.1.2.16 This habitat has a predefined condition of “NA – Other”

3.1.2.17 **Sparsely vegetated land: Tall forbs**

3.1.2.18 There were four parcels of tall forbs present on the Site with a total area of 1.89 ha

3.1.2.19 Two of these parcels were assessed as having poor condition. These parcels were located at east of the field containing the main BESS Site and at the west of the field containing the proposed cable route. The total area of tall forbs habitat with poor condition was 1.61 ha.

3.1.2.20 Two of these parcels were assessed as having moderate condition. These parcels were located to the west of side of the main Site. The total area of tall forbs habitat with moderate condition was 0.28 ha.

3.1.2.21 Species included mainly willowherbs *Epilobium* sp., Yorkshire fog *Holcus lanatus*, cocks-foot *Dactylis glomerata*, nettle *Urtica dioica* and hogweed *Heracleum sphondylium*.

3.1.2.22 **Individual trees: Rural trees**

3.1.2.23 There were three individual rural trees located along the access road to the south of the Site with a total area of 0.02 ha (two small and one medium sized). These all were goat willow *Salix caprea.*

3.1.2.24 All three individual trees were assessed as having good condition.

3.1.2.25 **Hedgerow: Native hedgerow**

3.1.2.26 There was one native hedgerow present on the Site located along Ashton Road at the south of Site; predominantly hawthorn *Crataegus monogyna* with some elder *Sambucus nigra*. The hedgerow was assessed as being of poor condition.

3.1.2.27 **Hedgerow: Non-native and ornamental hedgerow**

3.1.2.28 There was one non-native hedgerow present on the Site, comprising garden privet *Ligustrum ovalifolium*. this was located in the northeast of the Site along the road to the south of the existing Daines substation.

3.1.2.29 This hedgerow was assessed as being of poor condition.

3.1.2.30 **Line of trees**

3.1.2.31 There were three lines of trees not associated with a bank or ditch present on the Site

3.1.2.32 One of these was assessed as being of moderate condition. This line of trees was located alongside Ashton Road at the south of the main Site. Species of these trees include sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior*, and hawthorn.

3.1.2.33 The other two lines of trees were assessed as being of poor condition. These were located in the northeast of the Site along the road which runs south of the existing Daines substation. Species included Sycamore *Acer pseudoplatanus*.

3.1.2.34 **Line of trees associated with bank or ditch**

3.1.2.35 There were five lines of trees associated with a bank or ditch present on the Site.

3.1.2.36 Four of these were assessed as being of moderate condition. One of which was located along the east of the main Site, two were located to the south of the existing Daines substation in the northeast of the Site, and one was located along Birch Road which sits to the west of the existing Daines substation. Species of these trees include sycamore, ash, birch *Betula* sp.*,* elder and lime *Tilia x europaea*.

3.1.2.37 One of these lines of trees was assessed as being of poor condition. This was located in the northeast of the Site along Birch Road which sits to the west of the existing Daines substation.

3.1.2.38 **Ditches**

3.1.2.39 There were two watercourses that were considered to meet the criteria of a ditch in the statutory biodiversity metric. These were located on either side of Birch Road and were present within the red line boundary.

3.1.2.40 Both ditches were assessed as being of poor condition with no watercourse encroachment, and a major/minor encroachment of the riparian habitat. The riparian encroachment assessment was based on having minor encroachment within the habitat up to 5m on the Birch Road-side of both ditches, and major encroachment on the opposite sides of the ditches, where the fields adjacent to the bank tops were either cropland or horse-grazed.

3.1.3 Strategic Significance

3.1.3.1 As outlined in Section 2.4.2, the land containing the Site is formally identified in the Places For Everyone: Joint Development Plan Document (GMCA, 2024) and habitat enhancement proposals on part of the cable route have been for outlined for the Land At Carrington Junction application. Therefore, all habitats on Site have been assigned as High Strategic Significance.

3.1.4 Summary

3.1.4.1 The tables below present a summary of the habitat valuations of the Site baseline.

Table 11: On-site baseline biodiversity units – area habitats

A-1 Habitats						
UK Habs/ broad habitat	**UK Habs/ habitat type**	**Area (ha)**	**Distinctiveness**	**Condition**	**Strategic significance**	**Habitat units**
Grassland	Modified Grassland	3.94	Low	Poor	High	9.06

A-1 Habitats						
UK Habs/ broad habitat	**UK Habs/ habitat type**	**Area (ha)**	**Distinctiveness**	**Condition**	**Strategic significance**	**Habitat units**
Grassland	Other neutral grassland	0.02	Medium	Poor	High	0.10
Cropland	Cereal Crops	12.24	Low	N/A	High	28.15
Urban	Developed land; sealed surface	0.96	Very low	N/A	High	0
Urban	Artificial unvegetated, unsealed surface	0.88	Very low	N/A	High	0.05
Sparsely Vegetated land	Tall Forbs	0.28	Low	Moderate	High	1.29
Sparsely Vegetated land	Tall Forbs	1.61	Low	Poor	High	3.71
Individual Trees	Rural Tree	0.02	Medium	Good	High	0.34
Total		**19.96** **(19.93 excl trees)**				**42.65**

Table 12: On-site baseline biodiversity units – hedgerows

B-1 Hedges						
UK Habs/ broad habitat	**UK Habs/ habitat type**	**Length (km)**	**Distinctiveness**	**Condition**	**Strategic significance**	**Hedge units**
Hedgerows	Native hedgerow	0.15	Medium	Poor	High	0.68
Hedgerows	Non-native and ornamental hedgerow	0.01	Very low	Poor	High	0.01
Line of Trees	Line of Trees	0.55	Low	Moderate	High	2.52
Line of Trees	Line of Trees	0.13	Low	Poor	High	0.30
Line of Trees	Line of Trees associated with bank or ditch	0.46	Low	Moderate	High	2.09
Line of Trees	Line of Trees associated with bank or ditch	0.02	Low	Poor	High	0.04
Total		**1.31**				**5.64**

Table 13: On-site baseline biodiversity units – watercourses

C-1 Watercourses							
UK Habs/ habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Watercourse encroachment	Riparian encroachment	Watercourse units
Ditch	0.045	Medium	Poor	High	None	Major/Minor	0.17

3.2 Indicative Landscape Proposals (Post-Construction)

3.2.1.1 The proposed post development habitat plan is presented in Figure 2: Post Development Habitat Plan (Appendix B). The application will be submitted for full planning permission. As such, landscape detail has been provided in the Landscape Mitigation Plan (Arcadis, 2024b).

3.2.1.2 The proposed development area will be predominantly built structures and sealed surfaces, with areas around the Site containing other neutral grassland and mixed scrub with individual trees. Access roads will be widened marginally in places and converted to sealed surfaces for the most part. The cable route will comprise a mixture of retained habitats such as cropland and modified grassland where the works will be temporary and returned to their original state within two years.

3.2.1.3 Landscape proposals along the cable route have been sensitively designed due to the known presence of peat in the area. On completion of construction, part of the cable route within the field to the east of the main Site will be seeded with a species rich grassland mix to create 'other neutral grassland'. A shallow swale (0.3-0.5m depth) will be created within the grassland to slow the movement of water to the drainage ditches on the northern boundary and reduce the drying out effect. This is designed to allow parts of the grassland to be wet grassland, to increase ecological diversity and be sympathetic to the underlying potentially restorable deep peat present. Habitats identified within this area and the specific species selected have been chosen specifically as not to exacerbate the drying out of the potentially restorable deep peat.

3.2.1.4 Tree lines will be retained for the most part, with small sections removed to facilitate the cable route. One hedgerow will be lost, adjacent to Ashton Road, and a new species-rich hedgerow planted along the northern boundary of the main Site. Three trees adjacent to Ashton Road will be retained.

3.2.1.5 It must also be noted that an area of the cable route west of Birch Road, measuring 0.56 ha, has been classed as retained. This is due to the land being identified as BNG mitigation for a neighbouring development (Land At Carrington Junction; Planning Ref: 109755/OUT/22) and has therefore been excluded to ensure no double counting.

3.2.2 Retained habitats

3.2.2.1 Habitat locations can be seen in Figure 2: Post Development Habitat Plan (Appendix B).

3.2.2.2 **Grassland: Modified grassland**

3.2.2.3 A total of 3.54 ha of existing modified grassland will be retained post development.

3.2.2.4 **Grassland: Other neutral grassland**

3.2.2.5 All of the area of other neutral grassland included in the baseline will be retained (0.02 ha).

3.2.2.6 **Cropland: Cereal crops**

3.2.2.7 A total of 1.64 ha of cropland habitat will be retained post development.

3.2.2.8 **Urban: Developed land; sealed surface**

3.2.2.9 All of the developed land; sealed surface that was present on-site will be retained. This includes areas of the existing Daines substation and areas along the eastern access road. This gives a total of 0.96 ha of developed land; sealed surface to be retained.

3.2.2.10 **Urban: artificial unvegetated, unsealed surface**

3.2.2.11 A total of 0.05 ha of artificial unvegetated, unsealed surface will be retained.

3.2.2.12 **Sparsely Vegetated land: Tall Forbs – moderate condition**

3.2.2.13 A total of 0.19 ha of tall forbs of moderate condition will be retained. These are located to the west of the main BESS Site.

3.2.2.14 **Individual trees: Rural tree – good condition**

3.2.2.15 All three trees adjacent to Ashton Road will be retained, totalling an area of 0.02ha.

3.2.2.16 **Line of trees – moderate condition**

3.2.2.17 The majority of the existing line of trees with moderate condition will be retained post development, the only exception to this is a section which will be removed for the access road, which will run along to south of the Site. A total length of 0.53 km will be retained.

3.2.2.18 **Line of trees – poor condition**

3.2.2.19 All of the lines of trees of poor condition will be retained post development. A total length of 0.13 km will be retained.

3.2.2.20 **Line of trees: associated with bank or ditch – moderate condition**

3.2.2.21 The majority of the existing line of trees associated with a bank or ditch of moderate condition will be retained post development, the only exception to this is a section which will be removed for the access road to the east of the main Site and two sections which will be removed to facilitate the cable route at the east of the main Site and to the south of the existing substation. A total length of 0.41 km will be retained.

3.2.2.22 **Line of trees: associated with bank or ditch – poor condition**

3.2.2.23 All of the lines of trees associated with a bank or ditch of poor condition will be retained post development. A total length of 0.02 km will be retained.

3.2.2.24 **Non-native ornamental hedgerow**

3.2.2.25 All of the non-native ornamental hedgerow habitat will be retained post development (total length of 0.007 km).

3.2.2.26 **Ditch**

3.2.2.27 The two ditches will be retained post development giving a total length of 0.045km.

3.2.3 Created habitats

3.2.3.1 Habitat locations can be seen in Figure 2: Post Development Habitat Plan (Appendix B).

3.2.3.2 **Urban: Developed land; sealed surface**

3.2.3.3 The majority of the created habitats will be buildings and hardstanding or artificial unvegetated land. Overall, it is assumed that 8.65 ha of developed land; sealed surface will be created. This habitat has a predefined condition of N/A, so no condition assessment is required.

3.2.3.4 **Heathland and shrub: Mixed scrub**

3.2.3.5 Additional native mixed scrub planting totalling 0.97 ha is proposed to be planted on the Site. This will be located adjacent to the development on the west and south of the main BESS Site in order to act as screening, as well as providing ecological benefits. Locations for scrub planting have been chosen as those where the peat depth is recorded to be at least 1.5m deep and therefore is not anticipated to a significant impact on existing deep peat.

3.2.3.6 The mixed scrub habitat is targeted to be of moderate condition in the post construction phase.

3.2.3.7 **Grassland: Other neutral grassland**

3.2.3.8 Additional other neutral grassland habitat totalling 3.47 ha will be created on the Site. Of this, 1.14 ha will be located on the main BESS Site which will include an area to the west of the facility as well as around the boundary of the main field. The area to the west of the facility will also include a shallow swale in order to promote retention or slowing of water to the drainage ditches. On a precautionary basis and for the purposes of the metric, this swale has been included as a dry grassland habitat, due to the chance this may dry out for short periods of the year. The calculation has therefore been based on the lower value biodiversity unit score, rather than the units associated with a permanent wet feature to ensure deliverability of the 10% net gain requirement. It is however the intention for this swale to be wet for much of the year.

3.2.3.9 The remaining 2.33 ha will be created on the cable route section of the Site and will also include a shallow swale (0.3-0.5m depth) to allow for an area of wetter grassland by slowing down the flow of water to the drainage ditches to the north. Habitat creation on the cable section of the Site will have a delayed start of two years.

3.2.3.10 This habitat is targeted to be of moderate condition in the post construction phase.

3.2.3.11 **Grassland: Modified grassland**

3.2.3.12 An area of modified grassland will be planted as part of the new verge adjacent to Ashton Road. This area totals 0.45h.

3.2.3.13 This habitat is targeted to be of poor condition in the post construction phase.

3.2.3.14 **Individual trees: Rural trees**

3.2.3.15 Two trees will be planted within the main site (avoiding areas of peat depths of less than 1.5m). This will create a total of 0.008 ha of rural tree habitat on the Site.

3.2.3.16 This habitat is targeted to be of good condition in the post construction phase.

3.2.3.17 **Species-rich native hedgerow**

3.2.3.18 A species-rich native hedgerow will be planted along the north of the main Site with a total length of 0.24 km. Species will include field maple *Acer campestre*, hazel *Corylus avellana*, hawthorn, spindle *Euonymus europaeus*, holly *Ilex aquifolium*, blackthorn *Prunus spinosa*, dog rose *Rosa canina* and elder.

3.2.3.19 This habitat is targeted to be of moderate condition.

3.2.4 Enhanced habitats

3.2.4.1 **Ditch**

3.2.4.2 The ditch parallel to the east of Birch Road will be targeted to improve its riparian habitat on the eastern bank. This will be achieved by fencing off an area of grassland that is currently intensively horse grazed, to create ‘no encroachment’. This will result in a riparian encroachment classification of ‘Minor/No Encroachment’ along the 0.027 km stretch of ditch.

3.2.5 Strategic significance

3.2.5.1 The strategic significance of the Site is not considered to change between the baseline and post-intervention state, so all of the habitats on the Site are still considered to have a strategic significance of “Formally identified in local strategy”.

3.2.6 Summary

3.2.6.1 A summary of the valuation of the post-construction Site for created habitats is presented in Table 14.

Table 14: Biodiversity units from created habitats on-site, post-intervention.

Area Habitats								
UK habs/ habitat group	**UK habs/ habitat type**	**Area (ha)**	**Distinctiveness**	**Condition**	**Delay in starting habitat creation (years)**	**Final time to target condition**	**Difficulty**	**Biodiversity units**
Grassland	Other neutral grassland	1.14	Medium	Moderate	0	5	Low	8.79
Heathland and shrub	Mixed scrub	0.97	Medium	Moderate	0	5	Low	7.44
Urban	Developed land; sealed surface	8.65	V.Low	N/A - Other	0	0	Low	0.00
Grassland	Modified grassland	0.45	Low	Poor	0	1	Low	0.99
Individual trees	Rural tree	0.008	Medium	Good	0	30+	Low	0.04
Grassland	Other neutral grassland	2.33	Medium	Moderate	2	7	Low	16.68
Total		**13.54** **(13.53 excl trees)**						**33.93**
Hedges								
UK habs/ habitat group	**UK habs/ habitat type**	**Length (km)**	**Distinctiveness**	**Condition**	**Delay in starting habitat creation (years)**	**Final time to target condition**	**Difficulty**	**Biodiversity units**
Hedgerow	Species rich native hedgerow	0.24	Medium	Moderate	0	5	Low	1.58

3.3 Changes in Habitat Groups

3.3.1.1 The proposed development will result in changes to the amount and quality of the habitats on the Site. The UKhab classification system used within the metric contains a tiered system, grouping similar habitats into “Habitat Groups” and more specific “Habitat types”. For example, “Grassland” is a “Habitat Group”, that can contain “modified” and “other neutral grassland”, among others.

3.3.1.2 The changes to the habitat groups present within the development parcels are presented in Table 15.

Table 15: The changes in the total biodiversity unit values of the habitat groups on-site

Habitat group	Baseline biodiversity units	Post-intervention biodiversity units	Change in biodiversity units	Proposed on-site habitat creation satisfies trading summaries?
Cropland	28.15	3.76	-24.39	Yes
Grassland	9.16	34.70	+25.55	Yes
Heathland and shrub	0.00	7.44	+7.44	Yes
Sparsely vegetated land	5.00	0.87	-4.13	Yes
Urban	0.00	0.00	0.00	Yes
Individual trees	0.34	0.37	+0.04	Yes

3.4 Summary Results

3.4.1.1 The summary results of the assessment for the proposal, using the Statutory biodiversity Metric calculator are presented in Image 2.

Image 2: Final results of the BNG assessment

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	4.50
	Hedgerow units	0.88
	Watercourse units	0.02
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	10.56%
	Hedgerow units	15.63%
	Watercourse units	10.00%
Trading rules satisfied?	Yes ✓	

3.4.1.2 The metric indicates a biodiversity net gain of 10.56% can be delivered for habitat units, 15.63% can be delivered for hedgerow units and 10.00% for watercourse units. This exceeds the required 10% Biodiversity Net Gain for all habitat groups.

3.4.1.3 The assessment results also satisfy the metric trading rules.

4 Conclusion

4.1.1.1 A biodiversity net gain assessment was conducted to determine whether the proposed development can deliver the required 10% Biodiversity Net Gain. This assessment was conducted using the Statutory Biodiversity Metric. This compares the baseline state of the Site with the proposed post construction state to determine if a 10% net gain for biodiversity can be delivered.

4.1.1.2 The proposed development area will be predominantly built structures and sealed surfaces with areas around the Site containing other neutral grassland and mixed scrub with individual trees. Access roads will be widened marginally in places and converted to sealed surfaces for the most part. The cable route will comprise a mixture of retained habitats such as cropland and modified grassland where the works will be temporary and returned to their original state within two years. Part of the cable route within the field to the east of the main Site will become other neutral grassland, with a shallow swale. Tree lines will be retained for the most part, with small sections removed to facilitate the cable route. One native hedgerows will be removed, and a new species-rich hedgerow planted along the northern boundary of the main Site.

4.1.1.3 This will deliver an on-site net gain of 4.50 habitat units (**10.56%**), 0.88 hedgerow units (**15.63%**) and 0.02 watercourse units (**10.00%**), meaning that overall the development will produce a net gain in biodiversity on-site.

5 References

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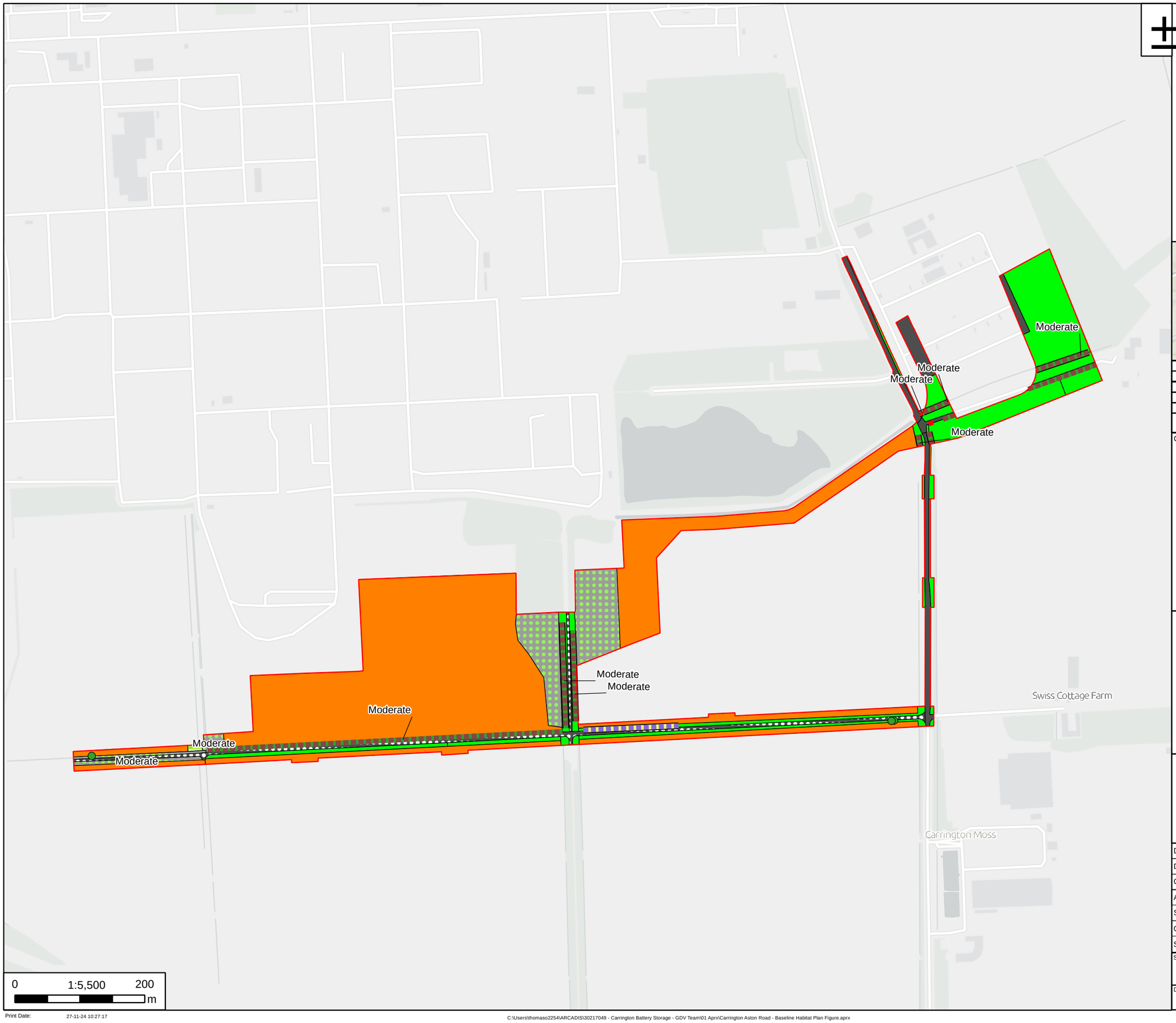
APPENDIX A Figure 1: Baseline Habitat Map



Legend

- Site Boundary
- Rural tree
- Native hedgerow - associated with bank or ditch
- Non-native and ornamental hedgerow
- Line of trees
- Line of trees - associated with bank or ditch
- Cereal crops
- Modified grassland
- Other neutral grassland
- Tall forbs
- Artificial unvegetated, unsealed surface
- Developed land; sealed surface

Notes
Service Layer Credits: GB Topographic: Contains OS data © Crown Copyright and database right 2023
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Rev	Date	Description	Drawn	Check	Approv
02	27/11/2024	FIRST ISSUE	OT	RS	SD
01	09/01/2024	INITIAL ISSUE	IS	RS	SD

Client:

PROJECT:
SSE CARRINGTON BATTERY STORAGE FACILITY

Site
Land north of
Ashton Road, Carrington

Client
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Figure 1 - Baseline Habitat Plan

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Drawn	O.Thomas	Date 27/11/2024	Signed
Checked	R. Sore	Date 27/11/2024	Signed
Approved	E.Pickering	Date 27/11/2024	Signed
Scale:	1:5,500	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	30217049

Suitability Description:
For Information

Drawing Number:

Revision:
P01

Print Date: 27-11-24 10:27:17

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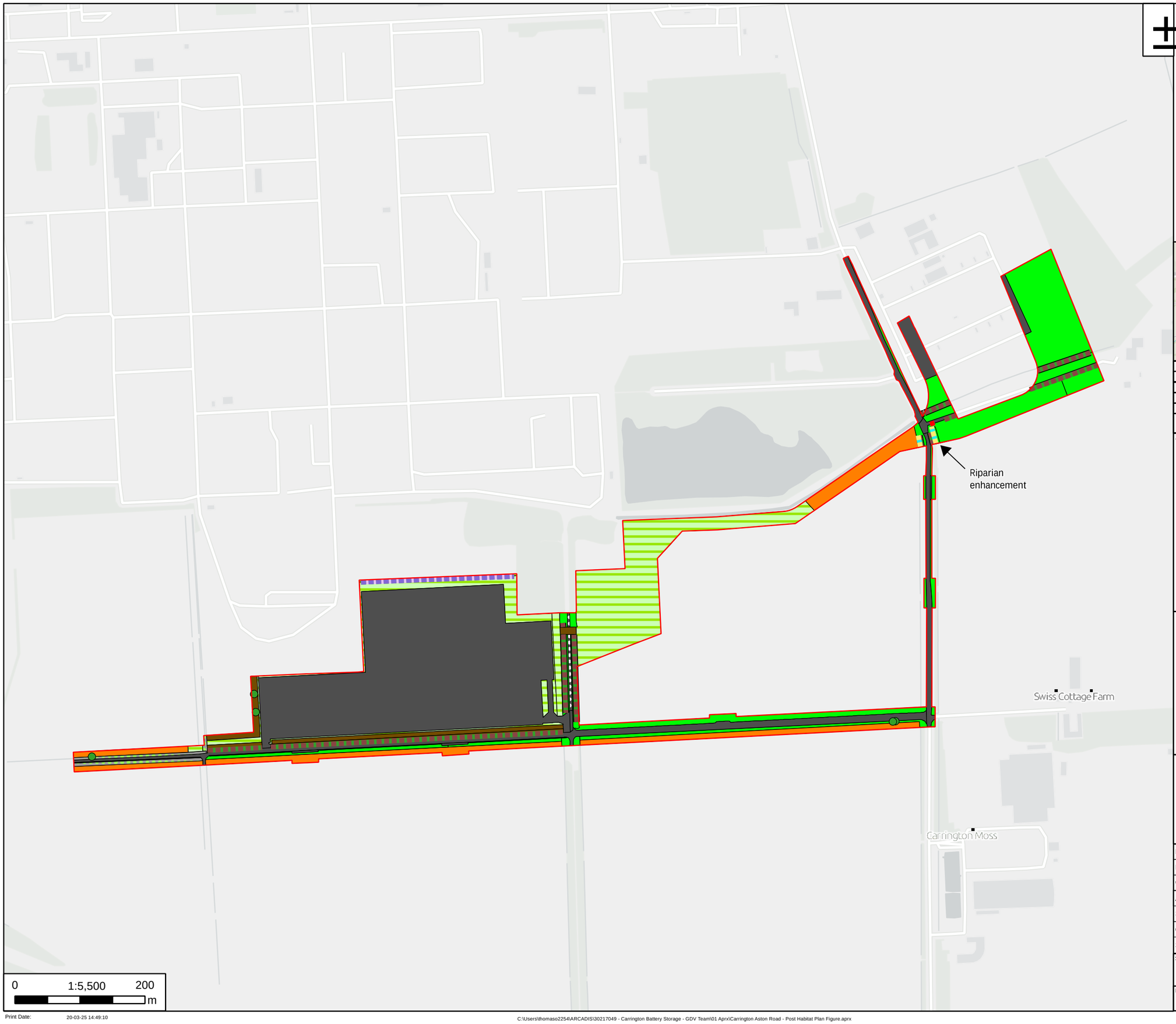
APPENDIX B Figure 2: Post Intervention Habitat Map



Legend

- Site Boundary
- Rural tree
- Native hedgerow - associated with bank or ditch
- Non-native and ornamental hedgerow
- Species-rich native hedgerow with trees
- Line of trees
- Line of trees - associated with bank or ditch
- Ditches
- Cereal crops
- Modified grassland
- Other neutral grassland
- Mixed scrub
- Tall forbs
- Artificial unvegetated, unsealed surface
- Developed land; sealed surface

Notes
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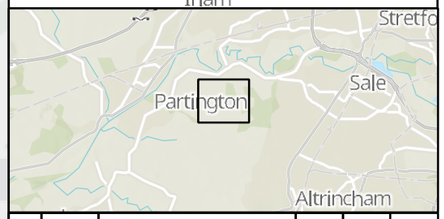

Rev	Date	Description	Drawn	Check	Approv
02	20/03/2025	FIRST ISSUE	OT	RS	SD
01	09/01/2024	INITIAL ISSUE	IS	RS	SD

Client:

PROJECT:
SSE CARRINGTON BATTERY STORAGE FACILITY

Site
Land north of
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Figure 2 - Post Development Habitat Plan

Designed	R. Sore	Date 20/03/2025	Signed
Drawn	O.Thomas	Date 20/03/2025	Signed
Checked	R. Sore	Date 20/03/2025	Signed
Approved	E.Pickering	Date 20/03/2025	Signed
Scale:	1:5,500	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	30217049

Suitability Description:
For Information

Drawing Number:

Revision:
P01

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